

Abstract

The invention is directed to methods for the non-radioactive labeling, detection, quantitation and isolation of nascent proteins translated in a cellular or cell-free translation system. tRNA molecules are misaminoacylated with non-radioactive markers which may be non-native amino acids, amino acid analogs or derivatives, or substances recognized by the protein synthesizing machinery. Markers may comprise cleavable moieties, detectable labels, reporter properties wherein markers incorporated into protein can be distinguished from unincorporated markers, or coupling agents which facilitate the detection and isolation of nascent protein from other components of the translation system. The invention also comprises proteins prepared using misaminoacylated tRNAs which can be utilized in pharmaceutical compositions for the treatment of diseases and disorders in humans and other mammals, and kits which may be used for the detection of diseases and disorders.

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